

Graduation Citation

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BEng(Elec&CompEng)(Hons), MEng(Comp&Comn) QUT

L.Dip.A.(Piano)(Hons) ANZCA

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Thesis Title:

Multi-Objective Mission Flight Planning in Civil Unmanned Aerial Systems

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Citation:

This thesis develops a framework for automatic aircraft navigation that replicates the multi-criteria decision making capabilities of a human pilot. The proposed system finds a flight path that optimises for flight safety objectives, mission efficiency objectives and the rules of the air. This algorithm is demonstrated to find paths of equivalent cost to a high resolution benchmark algorithm but uses a third of the computation time. As a result, the framework is suitable for in-flight replanning in response to dynamic changes in a complex aviation environment. By providing such a mission flight planning capability onboard the aircraft, it is possible to address the requirements for operating unmanned aircraft in the national airspace system.